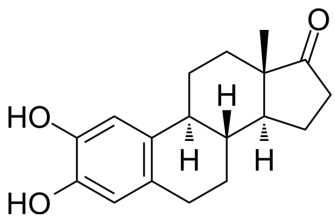
2-Hydroxyestrone

Cat. No.:	HY-113251
CAS No.:	362-06-1
Molecular Formula:	$C_{18}H_{22}O_3$
Molecular Weight:	286.37
Target:	Endogenous Metabolite; Estrogen Receptor/ERR
Pathway:	Metabolic Enzyme/Protease; Vitamin D Related/Nuclear Receptor
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

2-Hydroxyestrone (Catecholestrone) is a specific receptor-mediated antiestrogenic agent. 2-Hydroxyestrone is anticarcinogenic[1][2].

IC_{50} & Target		
	Human Endogenous Metabolite	Estrogen receptor

In Vitro

2-Hydroxyestrone exhibits antiestrogen action on MCF-7 human breast cancer cells. Addition of 2-Hydroxyestrone to the cell cultures in concentration of 1-1000 nM has no effect on cell growth and proliferation because of rapid O-methylation of the catechol estrogen by catechol O-methyltransferase which is highly active in these cells. In the presence of quinalizarin, a potent catechol O-methyltransferase inhibitor which reduces the O-methylation of the steroid, 10 and 100 nM 2-Hydroxyestrone markedly suppresses the growth and proliferation of the cells[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Proliferation Assay[2]

Cell Line:	Human breast cancer cell lines MCF-7, MDA-MB-231, and MDA-MB-330
Concentration:	1-1000 nM
Incubation Time:	6 days
Result:	10 and 100 nM markedly suppressed the growth and proliferation of the cells in the presence of quinalizarin. The tumor cell growth-inhibitory action of the catechol estrogen was neutralized by the presence of 1 nM estradiol.

In Vivo

Levels of both 2-Hydroxyestrone (2-OHE1; 2 mg/kg; administered ip.) and 2-Hydroxyestrone 4-N-acetylcysteine thioether (2-OHE1 4SR) in rats treated with 2-Hydroxyestrone were significantly different between the induced and noninduced groups[3].

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Animal Model:	Female and male Sprague-Dawley rats (6 weeks old)[3]
Dosage:	2 mg/kg

Administration:	Administered i.p.
Result:	Levels of both 2-OHE1 and 2-OHE1 4SR in rats treated with 2-OHE1 were significantly different between the induced and noninduced groups.

REFERENCES

[1]. H L Bradlow, et al. 2-Hydroxyestrone: the 'good' estrogen. J Endocrinol. 1996 Sep;150 Suppl:S259-65.

[2]. J Schneider, et al. Antiestrogen action of 2-Hydroxyestrone on MCF-7 human breast cancer cells. J Biol Chem. 1984 Apr 25;259(8):4840-5.

[3]. M Nakagomi, et al. Quantitation of catechol estrogens and their N-acetylcysteine conjugates in urine of rats and hamsters. Chem Res Toxicol. 2000 Dec;13(12):1208-13.

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